

**The Claims Defining the Invention are as Follows**

1. A method of measuring antioxidant status and/or the capacity to moderate oxidative stress in a sample including the step of contacting the sample with at least a fluorescing porphyrin compound.
- 5      2. A method of measuring antioxidant status and/or the capacity to moderate oxidative stress in a sample including the step of contacting the sample with at least a fluorescing porphyrin compound under conditions suitable for measuring the antioxidant status and/or the capacity to moderate oxidative stress in the sample.
- 10     3. A method according to claim 1 wherein the porphyrin compound is selected from the group comprising: uroporphyrin I, uroporphyrin II, uroporphyrin III, and uroporphyrin IV; coproporphyrin I, coproporphyrin II, coproporphyrin III, and coproporphyrin IV; MS-tetraphenylporphyrin; deuteroporphyrin IX; hematoporphyrin IX; mesoporphyrin; protoporphyrin IX; dihydrochloride  
15     and methyl ester derivatives of all the above mentioned porphyrins.
4. A method according to claim 1 wherein the porphyrin compound is of a uroporphyrin structure.
5. A method according to claim 1 wherein the porphyrin compound is uroporphyrin I dihydrochloride.
- 20     6. A method of measuring antioxidant status and/or the capacity to moderate oxidative stress in a sample, comprising the steps of:
  - a. contacting the sample with at least a free radical generating substance and a fluorescing porphyrin compound; and
  - 25     b. determining the antioxidant status and/or the capacity to moderate oxidative stress of the sample by measuring the resultant fluorescence of the mixture in step (a), and comparing the fluorescence to a standard.

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7. A method according to claim 6 wherein the free radical generating substance is selected from the groups comprising: peroxidase/H<sub>2</sub>O, horseradish peroxidase/H<sub>2</sub>O<sub>2</sub>, and "amidino-azo-radical initiators" such as 2,2'-azobis(2-methylpropionamidine) dihydrochloride.
- 5      8. A method according to claim 6 wherein the free radical generating substance is 2,2'-azobis(2-methylpropionamidine)dihydrochloride.
9. A method according to claim 6 wherein in addition to contacting the sample in step (a) with a free radical generating substance and a fluorescing porphyrin compound the sample is also contacted with at least a surfactant, emulsifier or solubilizer.
- 10      10. A method according to claim 9 wherein the surfactant is a polyoxyethylene alcohol.
11. A method according to claim 10 wherein the polyoxyethylene alcohol is a polyoxyethylene ether.
- 15      12. A method according to claim 1 or claim 6 wherein degradation of the porphyrin compound is measured by spectrofluorometer.
13. A kit for determining the antioxidant status and/or the capacity to moderate oxidative stress of a sample, comprising a free radical generating substance, a fluorescing porphyrin compound and instructions for their use in accordance with the method as claimed in claim 1 or claim 6.
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